Sports and Exercise Medicine
Dr Jason Chia Enlightens

All In The Mind
Psych Yourself Up to Exercise

Look Before You Eat
Don't Bite Off More Than You Can Burn

Pets Get Diabetes Too
How to Spot the Signs
An Exercise in Health

It is well known that exercising has great benefits for those with diabetes. For one thing, your blood sugar control would be better. For those on insulin treatment, exercise also makes the insulin more sensitive and therefore more effective. On the other hand, those who have weight issues will find their blood sugar control more difficult. Given that the health benefits of exercising is a given, why do we all struggle to maintain or even start to do something we all know is good? For our convenience, perhaps I could summarise the top five excuses and the top five reasons for exercising or not exercising.

Top 5 excuses for not exercising:
1. I cannot get up early in the morning and am too tired at the end of the day to exercise.
2. I have no time and no mood to exercise.
3. I cannot afford the gym fees and, besides, I don’t look good in sports attire.
4. I developed health problems from lack of exercise in the past. Now I think I cannot exercise because I have these health problems.
5. I think it is too far to travel to the park to exercise. The exercise machine at home is also not working properly because it is rarely used.

Top 5 reasons for exercising:
1. I will be more alert and sleep better.
2. I will feel better about myself and my mood will improve.
3. I will feel less stressed.
4. I have diabetes and my weight and blood sugar control will be better now.
5. I will have a lower risk of high blood pressure, heart problems, and stroke.

It has been reported that 30 minutes of walking a day lengthens your life by between 1.3 years (moderate level of physical activity) and 3.7 years (higher level of physical activity). Our health is in our hands!

PS: Do pace yourself when exercising and consult a professional before engaging in a higher level of physical activities. This is particularly important for those with heart conditions and/or high blood pressure.
Warm greetings to all! This year, Diabetic Society of Singapore turns 40! Over the hill already? Not at all! In fact, as we celebrate 40 years of unwavering service to our members and the general public, we want to make a toast to a bright future ahead.

Today, we can say, in humility and with gratitude to our dedicated staff and volunteers, that our voice is more audible and our services more visible. Moving ahead, we need more funds, more volunteers and more resources to run the society in order to meet the new challenges we face, such as effectively carrying out screening and clinical tests and adopting new technologies. We have been exploring greater cooperation with agencies, institutions, associations and speakers to raise our profile as well as to educate the masses by offering consultation, organising public talks and workshops, and conducting research.

DSS is also very proud to announce another major milestone in DSS’ history: we have won the bid to host the IDF-WPR Congress in 2014. We shall be expecting more than 2000 delegates from 20 countries to attend the scientific program as well as to visit the exhibition of the latest technologies in medical equipment and services.

The proposed 4-day event will include a fun walk from Esplanade Drive through Helix Bridge to Gardens by the Bay, followed by a sampling of local hawker food. We want our distinguished guests to savour the Singapore experience and bring home beautiful memories of their time here.

This year, we are also planning to celebrate World Diabetes Day on a larger scale in November. The organising committee will kick-start the meeting soon so look out for details in the next issue of Diabetes Singapore. Better still, come join us as members and volunteers and be a part of this very significant event, one that can help many live healthy lives and even save lives!

On 16 April 2011, the society will hold its Annual General Meeting and elect the next Management Committee for a two-year term. I urge all to attend. We need all the help we can get. See you there.

Thank you very much and here’s wishing you good health!

Yong Chiang Boon
President, Diabetic Society of Singapore
Health Screening in the Heartland
7 & 21 MARCH 2011

By Rodiah Hashim

The Diabetic Society of Singapore’s Mobile Centre rolled into the heartlands on 7 March 2011. In partnership with the Tung Ling COPE and Dakota Crescent Residents’ Committee, the mobile centre provided health screening for the residents and volunteers of the Care & Friends Centre at Block 10, Dakota Crescent.

TLCS manages the Elderly Activity Centre under Tung Ling COPE (Community Outreach Program for the Elderly) an initiative program established by South East Community Development Council.

With centre manager Mr Roger Neo’s help, the mobile bus found a lot at the carpark right where the centre is. Between 9.30am and 4.30pm, 27 pre-registered participants were screened that day for blood sugar level, blood pressure and total cholesterol checks.

In an email to DSS, Mr Neo said, “I am so glad things are working out well and we are having very positive response.” The feeling is mutual. Hence, a second visit by the Mobile bus to the Centre on 21 March. And we hope it will not be the last!
Some 50 participants armed themselves with a good knowledge of what not to eat or prepare during the Lunar New Year when they attended a public forum titled “Managing My Diabetes: What is My Score?”. Held at Suntec City Exhibition and Convention Centre, in collaboration with Johnson & Johnson Medical Singapore on 15 January 2011, the event began with a free glucose test for registered participants.

After a sumptuous but healthy lunch, Miss Angie Lee, a Diabetes Nurse Educator with the Diabetic Society of Singapore, discussed “Ways to Keep Diabetes Mellitus (DM) in Control”. In the segment that followed, Dr Kevin Tan, Consultant Endocrinologist, reiterated the importance of medication in the management of DM.

With the Chinese New Year festivities approaching, participants were given tips to healthy eating by Mr For Wei Chek, Dietetics Manager at Mt Alvernia Hospital, and his team of dietitians. He gave the low down on the contents and nutritional value of our local festive goodies.

The evening closed with participants getting their post glucose checks before teabreak. All in all, it was a fruitful session for our One Touch Users who went home satiated and much the wiser.
Psych Yourself Up To Exercise

Can’t get yourself to start that workout? Henry Lew, psychologist, offers some tried and tested ways to motivate you.
We all know about the benefits of exercise and the need to do it, one way or another. Exercise helps us to stay healthy, lose weight, relax, etc. Yet we procrastinate and cook up excuses not to budge. However, those who have overcome this inertia will testify to the fact that when the motivation and benefits are really close to our hearts, the going is not so tough.

**Think Benefits**

One of my previous patients, Mr Ranjit*, once shared with me: “I had known all along why it is important to exercise. But it was only when I realised that I wanted to see my grandchildren enter school and watch them grow up did I seriously start to exercise to stay healthy.”

Another patient, Mdm Siti*, commented: “I did not want to be seriously ill and be a burden to my loved ones... that’s why I started to exercise.” Love is a very strong motivator indeed!

**Think Double Benefits**

Perhaps another motivator for exercising could be that it may improve your dietary attempts! In research studies, participants were separated into two groups. Group A was encouraged to exercise while Group B just received general information about exercise. It turned out that Group A not only exercised more, lost more weight but they were also more motivated to watch their diet and make changes to their diet. Group A was less likely to eat when they were feeling sad, stress or bored. Group A was also more able to talk themselves out of giving in to temptations of eating! In my own encounters with patients, I have observed that many patients who began exercising also began restraining themselves when it came to eating unhealthily. They just did not want to let their efforts go to waste. They opted for sandwiches instead. The next time that you hesitate about exercising, think about the potential positive effect exercising will have on your diet as well!

**Think and Start Small**

We will have many reasons (real or made up) for not exercising or postponing it. And to be honest, the main and real reason is usually just because we feel tired, lazy, uncomfortable (i.e., sweating, panting, muscle soreness) about exercising. So, think and plan small, so that it seems more manageable and we are more likely to start on it. And when we start small, it will be at a level of intensity and frequency we are able to cope with. Don’t sabotage yourselves with sores and aches so that you will not want to exercise for the next two weeks! Consult a doctor or medical professional before starting any exercise programme; they would be able to advise how small or slow to start and how to increase exercise over the weeks.

**Think Fun**

Any activity can only be sustained if it is fun and interesting. Choose an exercise you like or enjoy doing. How about revisiting an activity or sport you used to like? Peter, a patient in his 70s once told me: “I actually went swimming after so many years of laying off. I can’t swim as fast or as long as I want to but I still derive a lot of pleasure from it.”

**Share the good times**

Sometimes we may be only restricted to a few exercise because of many reasons and these few exercises may seem boring. During these times you may want to gather a group or do an exercise activity that others have invited you to join. You will be delighted to see what company can do to liven up a mundane activity. Mdm Habibah*, who started climbing the stairs with her colleagues, said: “We’d head to the nearby block of flats and starting walking up and down. Who would have thought that climbing the stairs could be so much fun?”

Exercise itself releases endorphins and make us feel good. No wonder why people tend to continue to exercise and like to exercise once they get started. You can start feeling good too. To enjoy these endorphins we need to start exercising first. Think benefits, think small, start small and think fun. Now, just what are you waiting for?

* Names have been changed
Starting Insulin

Discovering A New Lease Of Life

When do you need insulin? Chionh Lay Keng and Angie Lee, diabetes nurse educators from Diabetic Society of Singapore, guide you through the process.
Achieving good blood sugar levels is a daily challenge for those with type 2 diabetes. High blood sugar is damaging to the cells and tissues in the body and lead to complications such as blindness, loss of a limb, kidney failure, heart attack and stroke. As such, many people dread a life with diabetes.

Most persons with type 2 diabetes need oral medication to lower their blood sugars and maintain at acceptable levels. Some may need insulin injections and may even choose to be on insulin for better control.

When Medications Fail

It is possible to control blood sugar levels for years with a good diet and exercise regime. Different oral medications (one or more) may additionally be needed. However, there are many situations or medical conditions that may render these oral tablets ineffective or no longer usable for the patient. These include:

- Acute infections or other serious illnesses
- Pregnancy
- Major surgery
- Congestive heart failure
- Kidney disease
- Liver disease
- Use of other drugs (prednisone and some psychiatric medications) that raise blood sugar
- Overeating or excessive weight gain
- Antibodies that destroy beta cells (in people with type-1, misdiagnosed as type 2)
- Progressive loss of beta cell function over many years

There are many with type 2 diabetes who experience progressive loss of pancreatic beta cell (insulin-producing cells) function. Their overworked beta cells seem to ‘burn out’, and drugs that were once effective can no longer hold their blood sugars are acceptable levels. The fact is that when type 2 diabetes is first found out in a person, only 50% of his beta cell function remains. According to the United Kingdom Prospective Diabetes Study (UKPDS, a landmark study about type 2 diabetes patients published in 1998), the function will continue to deteriorate over time despite treatment with diet, exercise and oral medication.

Some indicators that suggest that insulin has become necessary are:

1. Oral diabetes medications have been increased to the maximum dosage and yet blood sugar levels are still high.
2. No improvement in blood sugar levels even after switching between different oral diabetes medications
3. Blood sugar levels remain high and symptoms appear (excessive thirst, frequent urination, weight loss despite good appetite) despite oral medication, diet and exercise.

There is no doubt that many fear the thought of insulin injections. Some of these fears like the fear of needles; hypoglycaemia (low blood glucose episodes) and weight gain can be overcome with the help of a diabetes nurse educator or your own family physician who is specialised in diabetes.

Research clearly shows that achieving good control early on and maintaining it for as long as possible helps prevent or delay diabetic complications, including nerve, kidney, eye and heart disease, from happening up to twenty years later.

Looking forward to a life of good diabetes control is not unachievable nor a far-fetched dream…if you are motivated to do so. With discipline and support from your family and healthcare providers, you can discover a new lease of life with well-controlled diabetes!

References:

A healthy balanced diet and a healthy lifestyle are the key ingredients in the management of diabetes. Diabetes does not stop you from exercising. In fact, combining diet, exercise, and medicine (as prescribed) will help to control your weight and your blood sugar level.

People with diabetes can exercise safely as long as certain precautions are taken. Regular exercise helps to:

- Promote weight loss
- Optimise blood glucose control
- Optimise your blood pressure
- Improve insulin sensitivity
- Reduce risk of heart disease and stroke
- Keep your joint flexible
- Increase muscle strength and tone
- Improve well-being
- Reduce your stress level, promote relaxation, release tension and anxiety

How much exercise is enough?

Aim for at least 30 minutes of moderate-intensity, three to five days a week. If you are a beginner, it is important to build up the duration and intensity of the exercise gradually. You can split up the 30 minutes exercise into several parts. For example, you can take a 10-minute brisk walk three times a day.

It is important to choose an exercise that you enjoy. Finding an exercise buddy may help you to be more committed to your exercise regimen. Running, jogging, swimming and cycling are some examples of aerobic exercise that are fun and can easily fit into your lifestyle.
10,000 steps a day:
Always keep in mind your goal to increase physical activity whenever the opportunity arises. For example:

- Park your car further away and walk the rest of the way to reach your destination
- Use stairs instead of elevators
- Walk, run, play actively with your children or grandchildren
- Walk the kids to school
- Daily housecleaning or gardening
- Take a walking break instead of coffee break at work
- Hide the remote and change channels in the old-fashioned way
- Wear a pedometer and aim for 10,000 steps a day.

In addition to exercise, you should also watch your food intake in order to achieve optimal weight loss. You would be surprised to learn just how much exercise is required to burn off the EXTRA calories from your diet!

Exercise Precautions:
- Ensure proper foot wear
- Do not exercise if you are ill
- Do not exercise in the presence of ketosis. For people with type 1 diabetes who are deprived of insulin and are ketotic, exercise can worsen hyperglycaemia. Therefore, vigorous exercise should be avoided.
- Hypoglycaemia may occur during exercise for a person on insulin or certain types of oral hypoglycaemic agents. Hypoglycaemia is more common after exercise than during exercise because of the need to replete liver and muscle glycogen. Check with your physician before commencing your exercise programme.

If you enjoy sports:  If you enjoy dancing:  If you enjoy walking:

| Paintball | Ballroom dancing | Hiking |
| Tennis   | Salsa            | Brisk walking |
| Volleyball | Ballet        | Mall walking |
| Basketball | Aerobic dance | Dog walking |

References:
So, before you sink your teeth into that tantalising apple strudel or fried yam cake, be prepared to work it off! Exercise is not only important to help maintain your blood sugar level but it is also essential as part of a healthy living. Eating healthily and choosing the right foods is just as important for good blood sugar control. These two lifestyle changes will help you to stay fit and healthy.

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*based on a 60kg adult. This serves as a guideline only as energy expenditure level will alter according to your age, skill and fitness level.

Wheaty Starter

by Wong Yuefen, Dietitian, National Healthcare Group Polyclinics

Makes 4 x 200ml glasses

Ingredients

2 breakfast wheat biscuits
2 large bananas
500ml low-fat milk
60g low-fat plain yoghurt

Method

1. Blend all ingredients in a blender until smooth.
2. Pour into serving glasses.

Nutrition Information (Per Serving)

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<td>Dietary fibre</td>
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</table>
Asparagus & Green Beans with Almonds

by Wong Yuefen, Dietitian, National Healthcare Group Polyclinics

Serves 2

Ingredients
150g young asparagus, trimmed
100g French beans
2 teaspoons soft margarine
30g toasted almond flakes
Freshly ground black pepper & salt to taste

Method
1. Add asparagus and French beans to a large saucepan of boiling water. Cook for 1 minute, or until just tender.
2. Drain and toss with margarine and almond flakes.
3. Season with pepper and salt to taste.
4. Serve immediately.

Nutrition Information (Per Serving)

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The Rise of Sports and Exercise Medicine

Dr Jason Chia, Consultant, Sports Physician and Head, Sports Medicine and Surgery Clinic at Tan Tock Seng Hospital, talks to Charlotte Lim about the growing awareness of Sports and Exercise Medicine in Singapore.
What is Sports and Exercise Medicine?

Sports and exercise medicine is a medical specialist field that manages medical problems related to sports and exercise. The scope is wide and at the clinical level ranges from management and prevention of sports injuries to prescription of exercise for managing medical problems such as diabetes and obesity.

The image that immediately comes to mind when sports medicine is mentioned is that of the elite athletes where sports medicine plays a big role in sports performance. However, from the public health perspective, the “exercise medicine” portion also plays an important role, for instance, in its use of exercise to prevent the onset of or treatment of chronic diseases or looking at safety issues in sports participation and exercise.

While I have at times used the analogy of comparing the servicing of a Ferrari to a Toyota to highlight the differences when caring for an elite athlete versus a recreational athlete, in practice these two aspects are not diametric. For instance, the sports enthusiasts whom we take care of in the schools and sports clubs in the general population have very similar requirements as the elite athletes and will eventually be part of the talent pool from which the elite athletes are selected.

Why is Sports and Exercise Medicine becoming more popular among healthcare professionals and patients?

Increasingly, medical students and young doctors have been expressing interest in training in Sports Medicine. This is probably a result of the establishment of sports medicine clinics in the public healthcare institutions and in the formalization of training and career pathways.

For the latter, the popularity is probably due in part to the rising number in the population that exercises regularly and also competes in sports recreationally. There is a better understanding that they can manage their health not just through regular screening but also proactively by decreasing their risk factors through regular exercise. This leads to a rise in demand for sports medicine services.

Who are the key professionals in the Sports and Exercise Medicine consultation team?

The team at the Sports Medicine and Surgery Clinic consists of sports physicians, sports orthopaedic surgeon, sports physiotherapists, podiatrists and exercise physiologist. Each one is a specialist with a special skill set but in combination, the team provides the most appropriate treatment(s) for a particular problem. In the elite arena, the team may be set up differently with a greater representation of sports scientist e.g. exercise physiologist, sports nutritionist, sports biomechanist, sports psychologist and strength and conditioning coach.

What are some of the sports injuries you treat these days?

The list is pretty long but they can range from common conditions such as runner’s knee with ultramarathoners to tendon ruptures in surfers to plantar fasciitis from brisk walking.

There have been many recent studies in the area of sports medicine. Could you share one with our readers and what impact it might have on the way we view exercise?

The more recent studies reveal that regular exercise probably exerts its protective effect on the heart in terms of preventing coronary...
heart disease through its effect on inflammation. Working out the mechanism helps in refining the way we prescribe exercise for different conditions.

**How does exercise help one with diabetes or help prevent diabetes?**

Exercise helps by increasing the body’s sensitivity to insulin, increasing the muscle uptake on glucose in circulation, and decreasing body fat.

**Can people with diabetes engage in the same sports and exercise regimens as those without diabetes?**

Yes and no. People with diabetes are not a uniform group of patients. On one end of the spectrum would be Olympians like Steve Redgrave who has won five gold medals despite being diagnosed with diabetes at 35. On the other hand, there are those who have developed complications from long standing diabetes and, for them, the type and intensity of exercise need to be tailored to their fitness and medical conditions.

You were involved in the writing and publication of a handbook for exercise prescription for general practitioners. **What is the key point in the book?**

I think the key point is that exercise is like medicine and should be prescribed according to the patient’s fitness and medical condition.

You have completed the Ironman triathlon in Langkawi. **What were some of the hardest moments you had to overcome while preparing for the race and running in it?**

It was difficult juggling the huge volumes of training from three different disciplines with the rigours of medical training and working as a medical officer. There were a few times riding in the evening of the day after a busy call and a day’s work when I had been on the verge of dozing off while cycling. And the race itself was no easier. There were occasions on the run leg that I had wanted to give up. What really stopped me was the sight of a paraplegic athlete passing me by on a uphill slope (it turned out that he had a spinal cord injury from a riding accident two years ago) where he would stop intermittently and pivot this wheelchair 90 degrees to catch his breath. When it dawned on me that he had to do that so that he would not roll backwards (all I had to do when I needed to catch my breath was stop and stand) and that he had covered the distance with just his two arms... well, in the presence of such true grit, there was no excuse not to finish, was there?

**What area of research are you currently involved in?**

Currently, I am looking at how to use non-invasive methods to monitor the mechanical properties of tendons as they respond to treatment.

**What’s next for you, professionally and personally?**

Professionally, in terms of clinical development I would like contribute to the development of sports medicine towards refining exercise testing and prescription for medical conditions while administratively, towards how I can develop sports medicine in Tan Tock Seng Hospital to support wider national agendas.

Personally, I started learning golf two years ago. I get strange looks when I mention this to my old friends from the triathlon days but golf has taught me innumerable things (concentration, relaxation, self-awareness to name but a few) which I had not learnt from swimming, biking and running. It’s also a great way to meet and learn from people from all walks of life.
Diabetes and Pets

Pets can suffer from diabetes too. Knowing whether or not your dog or cat is healthy could save their lives. Here’s some information about diabetes in animals, and how best to manage the condition.

What are the causes of diabetes in animals?
Just like in humans, pets with diabetes may not be able to produce enough insulin, or possibly their bodies do not allow them to use insulin properly. Insulin is produced by the pancreas, and allows glucose in the blood to enter cells, allowing the body to properly function. Just like people, pets can suffer from both type 1 and type 2 diabetes.

What are the symptoms of diabetes in animals?
Diabetes symptoms and the complications of the disease are also similar to humans. The following symptoms could indicate that your animal has diabetes.

Diabetes symptoms
• Weight loss, often despite an increased appetite
• Excessive thirst and urination
• Breakdown of body fat and development of ketacidosis
• Lower appetite
• Pungent breath with a chemical smell
• Complications associated with diabetes

My animal looks very sick, could this be pet diabetes?
Your pet may be in the throes of hypoglycaemia or low blood sugar. Hypoglycaemia can occur in animals due to insulin overdose. The symptoms of hypoglycaemia include the following:

• Seizure
• Wobbliness
• Weakness
• Dullness
• Sleepiness
• Restlessness
• Coma

When pets are hypoglycaemic they should never be left alone overnight. The complications of untreated diabetes can be awful. These include cataract formation and loss of sight in dogs, and both nerve damage and hind-end weakness in cats.

Diabetes treatment for pets
Insulin is generally regarded as the benchmark treatment for both type 1 and type 2 diabetes. Your vet can prescribe special insulin. Owners of diabetic pets should discuss how best to prepare the insulin, and how much insulin is needed for pets, with their vet.

Insulin tips for diabetic animals
• Insulin should be stored in a refrigerator. Insulin should be mixed before being used.
• Mixing should be carried out using gentle rolling and no shaking.
• When insulin reaches its expiry date do not use it.
• Clip the hair of the pet where you need to inject insulin – this can make the injection process easier for both pet and owner.
• Monitor your pet’s blood glucose.
• Remember – pets can be treated with good results!
Managing pet diabetes

Like diabetes in humans, diabetes amongst animals needs to be closely managed in order for your pet to live a longer, healthier life. When a pet's diabetes is under control, they have normal thirst and urination times, a normal appetite, a stable weight, good vision and alertness and a good level of activity. There are three major parts of controlling blood sugar amongst animals. These are diet, blood glucose monitoring and exercise.

• **Diet.** When a dog or cat develops diabetes, they should be fed on dried or canned foods, but it is important to avoid semi-moist foods because of possible sugar content. Vets should be able to provide more information, and also advise on when to feed pets in relation to insulin.

• **Blood Glucose Monitoring.** Keeping an accurate monitor of your pet's blood glucose levels allows a vet to work out changes to the insulin regime or type. Some pet owner may be taught to do this at home.

• **Exercise.** Diabetes often occurs amongst overweight or obese animals, when excess fat leads to insulin resistance. Daily walks will be good for both the pet and the owner.

Dogs with Diabetes

How Common is it?

Diabetes is one of the most common hormonal diseases in dogs. It can occur in dogs as young as 18 months of age. Most dogs are between seven and ten when canine diabetes diagnosis is made. Approximately 70% of dogs with diabetes are female. Any breed can be affected, but dachshunds, poodles, miniature schnauzers, cairn terriers, and springer spaniels are at increased risk. Interestingly, diabetes is seen very infrequently in Cocker Spaniels, shepherds, collies, and boxers.

Canine Diabetes Signs

What signs might your dog be exhibiting if he/she is diabetic?

There are 3 clinical signs to look for:

• Diabetic patients usually show a marked increase in their water intake, along with an accompanying increase in urination. They frequently have excellent appetites, yet are losing weight. Finally, the sudden appearance of cataracts in the eyes suggests the possibility of underlying diabetes.

• As with most conditions, it is important to diagnose diabetes early in the disease. If you observe any of the above signs in your dog, don’t hesitate to get her to your family veterinarian. Left undiagnosed and untreated, diabetic dogs can develop life-threatening secondary complications due to the metabolic derangements in their body.

• The diagnosis of diabetes is generally fairly simple. The presence of a high blood sugar level (hyperglycaemia) and sugar in the urine (glucosuria) along with the appropriate clinical signs confirms the diagnosis. In dogs, normal blood sugar levels are 80 to 120. I have seen diabetic patients with values as high as 600.

Treatment

Although diagnosing diabetes is not demanding, treating it certainly is. That said, it is a treatable disease in dogs and most diabetic dogs can lead very high-quality lives. Virtually all dogs with diabetes require insulin therapy. Just as in humans, the insulin is administered by injection. Most dogs require insulin twice daily to adequately control their disease.

Before you throw up your hands and think you could never give your dog shots, that almost all owners are capable of properly administering insulin to their dogs. The needles used are very small, making the injections quite comfortable.

Insulin therapy

A complete discussion of insulin therapy is beyond scope here, but there are a few key points you should know. There are many different types of insulin available, be sure you discuss what type is appropriate for your dog with your veterinarian. Insulin should be refrigerated, and mixed gently before administration. This is done by carefully rolling the vial back and forth between the palms. Another important consideration is proper disposal of used insulin syringes and needles. Don’t throw them in the trash! Your veterinarian may be able to take care of disposing of the medical waste for you.

Complexities of Diabetes

Diabetes is a serious and complex disease. Until a “cure” is discovered, diabetic dogs and people will continue to require insulin therapy. This treatment demands close collaboration and communication between owner and veterinarian to make it a success. Treating diabetes can be very rewarding for patient and owner alike, and these dogs can and do live normal lives. If you observe any of the signs of diabetes in your dog, don’t delay - take him or her into your veterinarian for an examination.

Cats with Diabetes

Frequency

Diabetes occurs less frequently in cats than in dogs. However, when it does occur, feline diabetes can be more difficult to regulate.

When a diabetic cat ingests glucose and can’t process it properly, it leads to the build up of sugars in the blood stream. Eventually, the blood sugar gets so high that sugar begins to be spilled in the cat’s urine. Both the high blood sugar and the loss of sugar through the urine can have severe, and sometimes life threatening, consequences.
Common Profiles
Diabetes can occur in cats of any age, though most are over six-years-old. Some cats can be insulin dependent and can be helped by life-long insulin therapy. Other cats can be non-insulin dependent and only require insulin when stressed. Typically, these cats regain their balance once the stressful event is over.

History and Physical Examination
The common signs of diabetes are increased thirst and urination, along with increased appetite and weight loss. However, these signs can be masked in cats that have other illnesses. You may see signs of illness, such as:

- Vomiting
- Diarrhea
- Loss of appetite
- Breathing difficulties
- Weakness
- Straining to urinate

These symptoms can appear suddenly, over a few days, or over several months.

Diagnosis
In many cases, cats that have diabetes can be difficult to diagnose because they also have a concurrent illness or disease that can mimic diabetes. Some of these diseases are hyperthyroidism, kidney disease or failure, adrenal gland disease, gastrointestinal disease, cancer, liver disease or failure, and some types of drug treatment. To diagnose feline diabetes, veterinarians use the following tests:

- **Fasting blood-sugar level:** Test results that show a blood-sugar level over 200 indicate the possibility of diabetes. However, stress alone can result in higher blood-sugar levels (up to 300 to 400) in cats without diabetes, attributed to a surge of released adrenaline.
- **Urine glucose:** Diabetic cats have sugar in their urine. They can also have ketones in their urine, which results from a defective fatty acid metabolism. Cats without diabetes that are under stress may also have some glucose in the urine, but it is temporary.
- **Blood chemistries:** Lipemia, which is increased fat in the blood, can be evidence of liver dysfunctions.
- **Urinalysis:** In addition to sugar and possible ketones, there may be signs of bladder infections.

Treatment
Insulin injections are still the most accepted means of treating insulin-dependent diabetic cats. Initially, a diabetic cat is hospitalized and regulated for three to four days. During that time, multiple blood sugar tests are given to establish a proper schedule for the cat. The goal of treatment is to maintain a blood-sugar level between 100 and 200 during each 24-hour period and to improve or eliminate any symptoms. Often, numerous hospitalizations for serial blood sugars are required for monitoring and making adjustments in insulin dosages.

The nature of cats can make diabetes management difficult. As cats have a strong stress response, it can be hard to interpret blood-sugar tests. Some other difficulties in management difficulties are caused by the following conditions:

- Variability in insulin activity and dosage requirements
- Feline eating habits. Ideally, diabetic cats should be fed two to four times per day. Since most cats are fed by free choice, it can be hard to change them to interval feeding. Also, some cats will only eat one type of food, making it hard to change to a new diet.
- Transient diabetes. Some diabetic cats may spontaneously lose the need for insulin after years of treatment.
- Failure to perform serial glucose tests. Basing treatment on one random glucose test is considered a hit-or-miss approach, and is usually more time consuming and expensive than doing serial tests. It can also cause wide fluctuations in blood sugar levels.
- Failure to properly educate the diabetic cat owner
- Failure to give the proper dose of insulin
- Improper storage and handling of insulin
- Improper cat diet
- Improper blood-sugar monitoring Prolonged or frequent boarding of the cat Hormonal influences. Blood sugar can be controlled more easily in a spayed or neutered cat.
- Concurrent diseases
- Concurrent drug therapy

Source: www.diabetes.co.uk
The Adjustment Bureau

During the ride, I drank water to prevent dehydration and cramps. However, after cycling about 25 to 28 km, the cramps in my leg forced me to down PowerGel, a sports supplement, to make it to the finishing line. I clocked a time of 1 hour 25 minutes, one of my personal bests. After the ride, I guess I decided to congratulate myself with a can of isotonic drink before meeting my friend for breakfast.

At the breakfast table, I tested my blood glucose. It had gone up to 12.6mmol/L. I knew instantly that the culprit responsible for this blood sugar spike was that isotonic drink but the greater culprit was me! I realised that I should have tested my blood sugar after reaching the end point instead of indulging in that drink!

So before I tucked into my bowl of mee siam and cup of ice coffee, I had to do some damage control. I gave myself 8 units of Novorapid. After breakfast, I made my way home riding another 13km, which brought my blood glucose down to 5.3mmol/L. So, I ate another banana for recovery.

Every person living with diabetes has a different blood sugar profile and you need some time to get to know it better and adjust accordingly. It’s kind of like your own personal adjustment bureau. If you have any issues with understanding the blood sugar profile, I am sure your doctor and nurse educator can help you!